

COMPUTER APPLICATIONS
(COMP APPS)

Computer Applications is a business course that provides instruction in software concepts using a Windows-based professional suite, which includes word processing, spreadsheet, database, graphics, and presentation applications. Instruction in basic computer hardware and operating systems that support software applications is provided. Additional concepts and applications dealing with software integration, Internet use, and information about future technology trends are included. Instructional strategies should include teacher demonstrations, collaborative instruction, interdisciplinary and/or culminating projects, problem-solving and critical-thinking activities, simulations, and minibaskets/in-basket projects.

- Recommended Grade Level: 9
- Required Prerequisite: Digital Communication Tools or Business Middle Level
- Credits: A one-credit course over one semester
- Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas
- A Career Academic Sequence, Career-Technical program, or Flex Credit course
- Course content standards/performance expectations and Indiana Academic Standards integrated at: <http://www.doe.in.gov/octe/bme/curriculum/contentstandards.htm>
- Teacher Requirements: <http://doe.in.gov/dps/licensing/assignmentcode>
- Career Clusters: This course may be included as a component for career pathways in all Indiana career clusters
- Career pathway information: <http://www.doe.in.gov/careerpathways>

Course Content Standards and Performance Expectations**CA 1 Technology Operation and Conceptualization Skills**

CA 1.1 Content Standard: Students demonstrate a comprehensive understanding of the interactivity and operation of technology systems.

Performance Expectations

- CA 1.1.1** Select and demonstrate use of industry-standard hardware and emerging technology to complete any given task including academic work, i.e. scanners, digital cameras, digital camcorders, CD/DVDs, keyboard, touch screen, stylus, speech, and handhelds.
- CA 1.1.2** Select appropriate software for the support of content area learning such as sound, graphic, video, current industry-standard applications and suites/operating systems.
- CA 1.1.3** Use the operating system to save files to a hard drive, other drives, and/or a server.
- CA 1.1.4** Demonstrate the ability to follow instructions (instructor, text, manuals, help/on-line help, and/or screen).
- CA 1.1.5** Compare and contrast the functional relationship between basic hardware and software systems and their components.
- CA 1.1.6** Apply the organizational concept behind using files and folders for storing information and organizing files into folders.
- CA 1.1.7** Demonstrate saving, opening, and finding files using a variety of different formats.
- CA 1.1.8** Compare and contrast the use of and the difference between temporary memory (RAM), permanent memory (ROM), and storage (e.g., digital storage on hard, floppy, and zip disks; flash drives; and optical storage—CD/DVD).

- CA 1.1.9** Compare and contrast the many types of technologies used in society.
- CA 1.1.10** Use the operating system with application software i.e. database, spreadsheet, word processing, presentation, desktop publishing software to import images, text, and video/sound.

CA 2 Social, Ethical, and Human Issues of Technology

- CA 2.1 Content Standard:** Students understand and apply the social, legal, and ethical issues related to technology use in personal and professional endeavors.

Performance Expectations

- CA 2.1.1** Practice respectful and responsible use of technology through abiding by the school technology and Internet use policy.
- CA 2.1.2** Demonstrate the ability to work independently and as a team member (includes efficient use of time, organization of work, etc.).
- CA 2.1.3** Demonstrate an understanding of plagiarism and fair use; respect copyright laws of information producers such as authors and artists, including website developers.
- CA 2.1.4** Demonstrate an understanding of the interaction and interdependence between humans and technology.
- CA 2.1.5** Explain how changes in technology affect the workplace and society.

CA 3 Technology as a Productivity Tool

- CA 3.1 Content Standard:** Students use technology as a tool to increase productivity in completing projects, publications, and other creative works.

Performance Expectations

- CA 3.1.1** Apply a variety of input technology tools, i.e., speech recognition, hand-writing recognition, and keying.
- CA 3.1.2** Demonstrate appropriate handling and use of supplies and equipment.
- CA 3.1.3** Apply appropriate use of editing tools, i.e., spell check, thesaurus, find and replace, grammar, and hyphenation.
- CA 3.1.4** Identify and demonstrate the use, movement, and display of a variety of icons, toolbars, and the task pane.
- CA 3.1.5** Apply and use hyperlinking, i.e. files, sections, and the web.
- CA 3.1.6** Demonstrate time-management to complete tasks in allotted time.
- CA 3.1.7** Preview and print using print options.

- CA 3.2 Content Standard:** Students use word processing software through a variety of input technologies to create, edit, and publish industry appropriate documents.

Performance Expectations

- CA 3.2.1** Apply word-processing skills by creating a variety of business and technical documents, i.e., newsletters, flyers, multi-page reports, using wizards, templates, or composition.
- CA 3.2.2** Apply word-processing formatting skills, i.e., fonts, paragraphing, text flow options (widow/orphan), margins, indentations, page orientation, tabulation, breaks, enumeration, bulleting, borders/shading, columns.
- CA 3.2.3** Apply word-processing skills by accessing and editing documents, including the effective use of editing commands, i.e., delete, cut/copy/paste, format painter, undo/redo, repeat, and paste special.

- CA 3.2.4** Apply advanced word-processing skills in the creation of tables, including calculations and special features.
- CA 3.2.5** Apply word-processing skills and style manual usage to cite reference documentation, i.e. bibliography, works cited, footnotes, and endnotes.
- CA 3.2.6** Apply word-processing graphic object skills such as scale, insert, crop, borders, wrap text, autosshapes, fill and line options, shading, text boxes, WordArt.
- CA 3.2.7** Apply the ability to format a variety of documents that meet employability standards.
- CA 3.3 Content Standard:** Students use spreadsheet software to create, edit, and publish industry appropriate files.

Performance Expectations

- CA 3.3.1** Identify components of the spreadsheet window using industry terminology and efficiently navigate throughout the worksheets and workbook.
- CA 3.3.2** Demonstrate creating, opening, saving, renaming, inserting, deleting, retrieving, and closing a worksheets and workbooks.
- CA 3.3.3** Differentiate among and enter text, numbers, formulas, and functions.
- CA 3.3.4** Apply editing and enhancement features to cell contents, i.e., edit, fill, rotate, move, merge, size, number formats, 3-D references, alignment, auto formats, sorting, row/column setting and formats, styles, borders and colors.
- CA 3.3.5** Apply page setup features, i.e., margins, headers/footers, page order, grid lines, repeating row/column titles, comments, shrink-to-fit, page orientation, and center horizontally/vertically.
- CA 3.3.6** Create, insert, modify, position appropriate graphics.
- CA 3.3.7** Create, view, and edit comments.
- CA 3.3.8** Apply freeze rows and columns and window tile.
- CA 3.3.9** Create, enter, and edit formulas using arithmetic expressions and math order of operations.
- CA 3.3.10** Apply and edit functions, i.e. SUM, MIN, MAX, AVE, COUNT, IF, PMT, NOW, FV, PV.
- CA 3.3.11** Apply relative, absolute, and mixed cell references in formulas.
- CA 3.3.12** Copy, move, and verify accuracy of formulas.
- CA 3.3.13** Create effective charts or graphs which represent relevant data most effectively.
- CA 3.3.14** Edit and label chart components such as axis, legends, titles, etc.
- CA 3.3.15** Print charts and graphs in industry standard format on separate sheet or embedded with data.

- CA 3.4 Content Standard:** Students use database software to create, edit, and publish industry appropriate files.

Performance Expectations

- CA 3.4.1** Define and apply basic terminology associated with database design, creation, and use.
- CA 3.4.2** Plan, create, and modify a database table structure using design view.
- CA 3.4.3** Input, edit, and delete data in table.
- CA 3.4.4** Differentiate between and use multiple views.
- CA 3.4.5** Demonstrate database skills by planning/creating a table that includes field properties with or without a primary key; accessing/retrieving; saving; and printing.
- CA 3.4.6** Create a database using multiple tables to establish relationships between tables.
- CA 3.4.7** Demonstrate report creation that involves: group, sort, wizards, labels, calculated fields, aggregate functions, conditional formatting, concatenation, and format to industry standards.
- CA 3.4.8** Organize and analyze data, i.e., sorting, identifying, finding, filtering, and viewing.
- CA 3.4.9** Create and use queries to specify criteria such as wildcards, comparison operators (Boolean logic), numeric criteria, compound criteria.

CA 3.4.10 Automate database functions using wizards.

CA 3.4.11 Create a database using multiple tables.

CA 3.5 Content Standard: Students use presentation software to create, edit, and publish industry appropriate files.

Performance Expectations

CA 3.5.1 Apply industry standards in creating and presenting all presentations.

CA 3.5.2 Apply presentation software skills by creating, accessing/retrieving, saving, and printing files.

CA 3.5.3 Use views appropriately to create and manipulate presentations—normal, outline, notes, slide sorter view.

CA 3.5.4 Use appropriate slide layouts and design templates to create presentations.

CA 3.5.5 Analyze situations and select the appropriate printing output: handouts, slides, notes page, or outline.

CA 3.5.6 Use basic design guidelines to enhance visual presentations.

CA 3.5.7 Create a presentation with animations, graphics, sound, transitions, embedded objects, specialized features (charts, organizational charts, hyperlinks).

CA 3.5.8 Import relevant data from word processing, spreadsheet, database, presentation files.

CA 3.5.9 Create a summary slide.

CA 3.5.10 Create a stand-alone version for a CD/DVD (package for CD/DVD).

CA 3.5.11 Modify and design templates—master slide, master title slide, master notes, header/footer.

CA 3.5.12 Utilize grids and guides to create logos, placement of objects, etc., for more exact placement.

CA 3.5.13 Create an autorun looping presentation with message and proper timing.

CA 3.5.14 Demonstrate presentation skills by creating well-organized, audience-appropriate presentations such as informative, entertaining, instructional, etc., using proper public speaking techniques.

CA 3.5.15 Navigate an on-screen presentation using keyboard, mouse, pointer options, and other navigational tools.

CA 3.6 Content Standard: Students integrate software suite products and files to complete business, industry, and professional tasks.

Performance Expectations

CA 3.6.1 Demonstrate the ability to select appropriate software for completing a variety of projects.

CA 3.6.2 Demonstrate the ability to integrate files within an industry-standard software suite.

CA 4 Technology as a Communication Tool

CA 4.1 Content Standard: Students use telecommunications to collaborate, publish, and interact with peers, teachers, experts, and other audiences.

Performance Expectations

CA 4.1.1 Demonstrate telecommunications skills by collaborating and communicating effectively with peers, experts, teachers, and other audiences, i.e. using e-mail, e-learning, video conferencing, instant messaging, chat, blogs, newsgroups, net meetings,.

CA 4.1.2 Use appropriate technology to plan, develop, edit and present material to different types of audiences, i.e., paper, web page, multimedia presentation, publications, speech, hypermedia.

CA 5 Technology as an Information Research Tool

CA 5.1 Content Standard: Students use technology to access, review, evaluate, and select information from multiple resources for reporting purposes.

Performance Expectations

- CA 5.1.1** Evaluate and select appropriate sources of information (i.e., print, video, electronic, and human) for a specific research problem or question.
- CA 5.1.2** Demonstrate the ability to use bookmarks and Internet search engines to access information by identifying and conducting basic and advanced searches using Internet/intranet search engines, directories, biographical dictionaries and thesaurus.
- CA 5.1.3** Evaluate and select several resources from a variety of information sources by reviewing each author's credentials, perspective, or bias; validate the accuracy of information based on multiple audiences.
- CA 5.1.4** Use portable document software to read and create .pdf files for the web.

CA 6 Technology as a Problem-Solving and Data-Driven Decision-Making Tool

CA 6.1 Content Standard: Students use technology to develop strategies for solving problems.

Performance Expectations

- CA 6.1.1** Integrate technology to solve problems and make informed decisions.
- CA 6.1.2** Analyze a problem from different perspectives using appropriate tools (e.g., spreadsheets, databases).
- CA 6.1.3** Integrate information and communication technology to analyze a real-world problem, design and implement procedures to monitor information, set timelines, and evaluate progress toward the solution.

CA 7 Technology as an Assessment Tool

CA 7.1 Content Standard: Students use technology to take developmentally appropriate tests utilizing audio and/or visual feedback when necessary.

Performance Expectations

- CA 7.1.1** Take computer-adaptive timed multiple-choice or true/false tests.
- CA 7.1.2** Take computer-based narrative tests.
- CA 7.1.3** Take computer-based tests for topic remediation and support, and use feedback appropriately for self-assessment.

Indiana's Academic Standards Integrated into Computer Applications

English/Language Arts

Standard 1

READING: Word Recognition, Fluency, and Vocabulary Development

10.1.1 Understand technical vocabulary in subject area reading.

Standard 2

READING: Reading Comprehension

- 9.2.1 Analyze the structure and format of functional workplace documents, including the graphics and headers, and explain how authors use the features to achieve their purposes.
- 9.2.2 Prepare a bibliography of reference materials for a report using a variety of consumer, workplace, and public documents.
- 9.2.3 Generate relevant questions about readings on issues that can be researched.
- 9.2.4 Synthesize the content from several sources or works by a single author dealing with a single issue; paraphrase the ideas and connect them to other sources and related topics to demonstrate comprehension.
- 9.2.5 Demonstrate use of technology by following directions in technical manuals.
- 9.2.6 Critique the logic of functional documents by examining the sequence of information and procedures in anticipation of possible reader misunderstandings.
- 10.2.3 Demonstrate use of sophisticated technology by following technical directions.

Standard 4

Writing: Writing Process

- 9.4.1 Discuss ideas for writing with classmates, teachers, and other writers and develop drafts alone and collaboratively.
- 9.4.2 Establish a coherent thesis that conveys a clear perspective on the subject and maintain a consistent tone and focus throughout the piece of writing.
- 9.4.3 Use precise language, action verbs, sensory details, and appropriate modifiers.
- 9.4.4 Use writing to formulate clear research questions and to compile information from primary and secondary print or Internet sources.
- 9.4.5 Develop the main ideas within the body of the composition through supporting evidence, such as scenarios, commonly held beliefs, hypotheses, and definitions.
- 9.4.6 Synthesize information from multiple sources, including almanacs, microfiche, news sources, in-depth field studies, speeches, journals, technical documents, and Internet sources.
- 9.4.7 Integrate quotations and citations into a written text while maintaining the flow of ideas.
- 9.4.8 Use appropriate conventions for documentation in text, notes, and bibliographies following the formats in specific style manuals.
- 9.4.9 Use a computer to design and publish documents by using advanced publishing software and graphic programs.
- 9.4.10 Review, evaluate, and revise writing for meaning, clarity, content, and mechanics.
- 9.4.11 Edit and proofread one's own writing, as well as that of others, using an editing checklist with specific examples of corrections for frequent errors.
- 9.4.12 Revise writing to improve the logic and coherence of the organization and perspective, the precision of word choice, and the tone by taking into consideration the audience, purpose, and formality of the context.
- 10.4.1 Discuss ideas for writing with classmates, teachers, and other writers and develop drafts alone and collaboratively.
- 10.4.5 Develop the main ideas within the body of the composition through supporting evidence, such as scenarios, commonly held beliefs, hypotheses, and definitions.

- 10.4.6 Synthesize information from multiple sources. Identify complexities and inconsistencies in the information and the different perspectives found in each medium, including almanacs, microfiche, news sources, in-depth field studies, speeches, journals, technical documents, or Internet sources.
- 10.4.7 Integrate quotations and citations into a written text while maintaining the flow of ideas.
- 10.4.8 Use appropriate conventions for documentation in text, notes, and bibliographies following the formats in different style manuals.
- 10.4.9 Use a computer to design and publish documents by using advanced publishing software and graphic programs.
- 10.4.10 Review, evaluate, revise, edit and proofread writing, using an editing checklist.
- 10.4.11 Apply criteria developed by self and others to evaluate the mechanics and content of writing.
- 10.4.12 Provide constructive criticism to other writers with suggestions for improving organization, tone, style, clarity, and focus; edit and revise in response to peer reviews of own work.

Standard 5

Writing: Writing Applications

- 9.5.5 Write documents related to career development, including simple business letters and job applications that:
 - present information purposefully and in brief to meet the needs of the intended audience.
 - follow a conventional business letter or memorandum format.
- 9.5.6 Write technical documents, such as a manual on rules on behavior for conflict resolution, procedures for conducting a meeting, or minutes of a meeting that:
 - report information and express ideas logically and correctly.
 - offer detailed and accurate specifications.
 - include scenarios, definitions, and examples to aid comprehensions.
 - anticipate readers' problems, mistakes, and misunderstandings.
- 9.5.7 Use varied and expanded vocabulary, appropriate for specific forms and topics.
- 9.5.8 Write for different purposes and audiences, adjusting tone, style, and voice as appropriate.
- 10.5.5 Write business letters that:
 - provide clear and purposeful information and address the intended audience appropriately.
 - use appropriate vocabulary, tone, and style to take into account the nature of the relationship with, and the knowledge and interests of, the intended audience.
 - emphasize main ideas or images.
 - follow a conventional style with page formats, fonts (typeface), and spacing that contribute to the documents' readability and impact.
- 10.5.6 Write technical documents, such as a manual on rules of behavior for conflict resolution, procedures for conducting a meeting, or minutes of a meeting that:
 - report information and express ideas logically and correctly.
 - offer detailed and accurate specifications.
 - include scenarios, definitions, and examples to aid comprehension.
 - anticipate readers' problems, mistakes, and misunderstandings.
- 10.5.7 Use varied and expanded vocabulary, appropriate for specific forms and topics.
- 10.5.8 Write for different purposes and audiences, adjusting tone, style, and voice as appropriate.

Standard 6

Writing: Written English Language Conventions

- 9.6.3 Produce legible work that shows accurate spelling and correct use of the conventions of punctuation and capitalization.

- 9.6.4 Apply appropriate manuscript conventions, including title page presentation, pagination, spacing and margins, and integration of source and support material, by citing sources within the text, using direct quotations, and paraphrasing.
- 10.6.2 Demonstrate an understanding of sentence construction including parallel structure, subordination, and the proper placement of modifiers and proper English usage including the consistent use of verb tenses.
- 10.6.3 Produce legible work that shows accurate spelling and correct use of the conventions of punctuation and capitalization.
- 10.6.4 Apply appropriate manuscript conventions, including title page presentation, pagination, spacing and margins, and integration of source and support material, by citing sources within the text, using direct quotations, and paraphrasing.

Standard 7

Listening and Speaking: Listening and Speaking Skills, Strategies, and Applications

- 9.7.2 Choose appropriate techniques for developing the introduction and conclusion in a speech, including the use of literary quotations, anecdotes (stories about a specific event), or references to authoritative sources.
- 9.7.4 Use props, visual aids, graphs, and electronic media to enhance the appeal and accuracy of presentations.
- 9.7.6 Analyze the occasion and the interests of the audience and choose effective verbal and nonverbal techniques (including voice, gestures, and eye contact) for presentations.
- 9.7.19 Deliver descriptive presentations that:
- establish a clear point of view on the subject of the presentation.
 - establish the presenter's relationship with the subject of the presentation (whether the presentation is made as an uninvolved observer or by someone who is personally involved.)
 - contain effective, factual descriptions of appearance, concrete images, shifting perspectives, and sensory details.
- 10.7.4 Use props, visual aids, graphs, and electronic media to enhance the appeal and accuracy of presentations.
- 10.7.6 Analyze the occasion and the interests of the audience and choose effective verbal and nonverbal techniques (including voice, gestures, and eye contact) for presentations.
- 10.7.15 Deliver expository (informational) presentations that:
- provide evidence in support of a thesis and related claims, including information on all relevant perspectives.
 - convey information and ideas from primary and secondary sources accurately and coherently.
 - make distinctions between the relative value and significance of specific data, facts, and ideas.
 - include visual aids by employing appropriate technology to organize and display information on charts, maps, and graphs.
 - anticipate and address the listeners' potential misunderstandings, biases, and expectations.
 - use technical terms and notations accurately.
- 10.7.16 Apply appropriate interviewing techniques that:
- prepare and ask relevant questions.
 - make notes of responses.
 - use language that conveys maturity, sensitivity, and respect.
 - respond correctly and effectively to questions.
 - demonstrate knowledge of the subject or organization.
 - compile and report responses.
 - evaluate the effectiveness of the interview.

- 10.7.19 Deliver descriptive presentations that:
- establish a clear point of view on the subject of the presentation.
 - establish the relationship with the subject of the presentation (whether the presentation is made as an uninvolved observer or by someone who is personally involved.)
 - contain effective, factual descriptions of appearance, concrete images, shifting perspectives, and sensory details.

Algebra I

A1.2 Linear Equations and Inequalities

A1.2.6 Solve word problems that involve linear equations, formulas, and inequalities.

A1.3 *Relations and Functions*

A1.3.1 Sketch a reasonable graph for a given relationship.

A1.3.2 Interpret a graph representing a given situation.

A1.9 *Mathematical Reasoning and Problem Solving*

A1.9.1 Use a variety of problem solving strategies, such as drawing a diagram, making a chart, guess-and-check, solving a simpler problem, writing an equation, and working backwards.

A1.9.2 Decide whether a solution is reasonable in the context of the original situation.

Algebra II

A2.10 *Mathematical Reasoning and Problem Solving*

A2.10.2 Decide whether a solution is reasonable in the context of the original situation.

Probability and Statistics

PS.1 *Descriptive Statistics*

PS.1.1 Create, compare, and evaluate different graphic displays of the same data, using histograms, frequency polygons, cumulative distribution functions, pie charts, scatter plots, stem-and-leaf plots, and box-and-whisker plots. Draw these by hand or use a computer spreadsheet program.

PS.1.2 Compute and use mean, median, mode, weighted mean, geometric mean, harmonic mean, range, quartiles, variance, and standard deviation.

Discrete Mathematics

Standard 1 Counting Techniques

DM.1.1 Use networks, traceable paths, tree diagrams, Venn diagrams, and other pictorial representations to find the number of outcomes in a problem situation.

Standard 2 Students use matrices

DM.2.2 Use matrix operations to solve problems.

The National Educational Technology Standards (NETS) Integrated into Computer Applications

Technology Foundation Standards for Students

1. Basic operations and concepts
 - Students demonstrate a sound understanding of the nature and operation of technology systems.
 - Students are proficient in the use of technology.
2. Social, ethical, and human issues
 - Students understand the ethical, cultural, and societal issues related to technology.
 - Students practice responsible use of technology systems, information, and software.
 - Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.
3. Technology productivity tools
 - Students use technology tools to enhance learning, increase productivity, and promote creativity.
 - Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.
4. Technology communications tools
 - Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.
 - Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.
5. Technology research tools
 - Students use technology to locate, evaluate, and collect information from a variety of sources.
 - Students use technology tools to process data and report results.
 - Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.
6. Technology problem-solving and decision-making tools
 - Students use technology resources for solving problems and making informed decisions.
 - Students employ technology in the development of strategies for solving problems in the real world.